



Newsletter of the
Utah Geological Association

P.O. Box 520100 – Salt Lake City, Utah 84152-0100

<http://utahgeology.org>

VOLUME 44, NUMBER 2

February 2012

February UGA Luncheon Meeting
February 13, 2012

The Resolution Cu-Mo Deposit: Discovery and Evaluation of a Deep High-Grade Porphyry Copper Deposit in Central Arizona

Geoff Ballantyne
Chief Geologist
Rio Tinto Copper Group

Abstract

Resolution, a deep, high-grade, porphyry Cu-Mo deposit lies 100 km east of Phoenix, Arizona. It was discovered in 1995 by geologists from Magma Copper and BHP Copper while exploring for veins to supplement the reserves of the Magma copper mine. A talented exploration team, including Scott Manske and Alex Paul, recognized that a zone of quartz-sericite alteration locally cut by quartz-pyrite-bornite-chalcopyrite veins encountered in a flat underground hole might represent the uppermost levels of a porphyry deposit. They subsequently drilled three inclined underground holes and two deep surface holes that cut hypogene mineralization with grades in excess of 1% Cu.

Deeper portions of the Resolution deposit are hosted by Proterozoic quartzite, limestone, and diabase sills, minor Paleozoic quartzite



and limestone, and Cretaceous arkosic and volcanoclastic sediments. A few 66 to 69 Ma porphyry dikes and plugs have been intersected within the deposit, but a central stock clearly responsible for driving the hydrothermal system has not yet been identified. Approximately 1 km of post-mineral conglomerate and ignimbrite overlie the mineralized rocks.

The top of >1% Cu mineralization lies almost 1.5 km below surface, and drilling indicates that mineralization persist to depths of at least 2.25 km below surface. An area with plan dimensions of about 1.5 km by 1.5 km exhibits porphyry copper-style mineralization. The deposit exhibits strong zoning from a biotite-altered core with chalcopyrite mineralization, upward through a zone of sericitic and advanced argillic alteration with chalcopyrite-bornite-chalcocite mineralization. Although numerous pre-mineral faults are present, the deposit lies between major extensional faults and appears to have escaped major dismemberment.

The Resolution deposit is the subject of comprehensive geological, hydrological, environmental and engineering studies carried out by Resolution Copper Mining, a company jointly owned by Rio Tinto and BHP Billiton. Resource definition is in progress with six rigs. Magma mine Shaft 9 is being rehabilitated, and a new shaft, Shaft 10, is currently being sunk. Current plans envisage a block cave mine feeding a conventional copper concentrator. Published inferred resources are 1,624 million tonnes at 1.47% Cu and 0.037% Mo. Updated information is available at <http://www.resolutioncopper.com>.

Biography: Geoff Ballantyne is originally from New Zealand. He earned a BSc. from the University of Otago, joined Kennecott's exploration team in New Zealand, then later traveled to Utah and obtained a Ph.D. at the University of Utah where he studied under Bill Parry.

Geoff has since explored for and assessed ore deposits in a wide variety of terranes around the world. Professional highlights include managing the exploration of a 40 M ounce gold deposit within an active geothermal system on Lihir Island, in Papua New Guinea, and helping Rio Tinto to assess the Grasberg Cu-Au deposit in Indonesia, the Resolution Cu-Mo deposit in Arizona, and the Oyu Tolgoi Cu-Au deposit in Mongolia. Geoff's present role is Chief Geologist for Rio Tinto's Copper Group.

***** **LUNCHEON LOCATION** *****

The January luncheon meeting will be at 12:00 noon, **Monday, February 13th, 2012**, at the **Utah Department of Natural Resources**, 1594 West North Temple. *Enter on south side.*

Please make your reservations no later than 4:00 p.m. on Thursday February 9th. Click to make reservations for the Luncheon Meeting by sending email to reservations@utahgeology.org.

PLEASE NOTE: If after making a reservation you know you will be unable to attend, please notify the Treasurer **no later than 9:30 a.m. on the day of the talk** so that a walk-in may take your place. Otherwise, no-shows will be billed \$10.

Lunch at 12:00 noon. Meeting begins at 12:30. Cost: \$10.00 w/ reservations; \$5.00 for students. Cash or Checks only please.

President's Message

Students and Recent Graduates: Your Geologic Career Opportunities are Opening Up!



UGA Members: I recently ran across this article in the *The Professional Geologist (TPG)*, the American Institute of Professional Geologists' (AIPG) magazine, about the brightening future outlook for young geoscientists. The article was written by Stephanie Jarvis, student at Southern Illinois University, and published in the Jan/Feb issue (2112) of *TPG*. With permission from AIPG and Stephanie, we reprint that article here. Enjoy!

Kimm Harty

Taking the Torch by Stephanie Jarvis

In September, I had the opportunity to attend the AIPG National Conference. I made an observation as I looked around the room during the dinner on the last night: with a few notable exceptions and with all due respect, there were a lot of old men. This trend was even more apparent at a hydrogeology luncheon I happened to attend at the Annual GSA Meeting in Minneapolis a month later. Now, I don't mean old as in actually *old*. I mean old in workforce terms, as in they'll probably be thinking about adopting a more reasonable pace of life soon and leaving all (or at least some) of this work business to less wise folks.



What does this mean for us as students and/or recent graduates? Two very important things. One: There is a lot of knowledge and experience in those white hairs, not to mention good stories. And two: They're looking for hands to pass the torch on to. Whose hands? Ours: recent or soon-to-be grads eager to make our mark on our chosen field. Granted, those that are able to attend such functions as meetings and luncheons do not provide a representative sample of the current workforce. As David Abbott points out in his article "Students and Job Outlook" in this issue, though, there is definitely an aging trend to be noted. He points out that the current workforce age distribution is very similar to the one present when he entered the workforce. His message: take advantage of it.

While most of the economy may not be looking that great, the outlook for geoscientist's isn't too bad. In fact, according to AGI's Geoscience Currents (No. 53, September 30, 2011), the expected growth in geoscience-related jobs is 23%, compared to 10% for all U.S. occupations. The need for fresh blood was alluded to by James Robertson, Wisconsin State Geologist and moderator of the GSA Geology in Government Mentor Program, at the GSA Student Lunch, when he quipped that "we're worried about the foodchain." Translation: there should be jobs for us.

Getting a job is just a step to starting a successful career. Great tips for that can be found in *Reflections on a Geologic Career*, available on the AIPG website. Once we get those jobs we should keep that first consequence in mind—you'll probably be working under people that have been in the field for a while, so take advantage of all that experience! Knowing as much as you can about the progression of your field can only help you in the future, and there's no better way to learn than picking the brain of somebody who has seen a lot. Knowing how we got where we are is the first step to avoiding previous mistakes and to being the best geologists possible. At least try to get some of those stories out over a drink or two. I'd be willing to bet that, in about 30-40 years or so, we'll be glad for the advice we received and will appreciate the chance to pass our hard-earned knowledge on. Our professions will probably look quite different then than they do now. For one, there will likely be a few more old women in the mix.

Utah Geological Association Upcoming Speakers

Tentative Speaker Schedule for 2012			
Month	Tentative Speaker	Date	Location
February	Geoff Ballantyne Rio Tinto	02-13-2012	DNR – Room 1040
March	Kristine Pankow Utah Seismic Station	03-12-2012	DNR – Room 1040
April	Stephen E. Laubach AAPG Distinguished Lecture	04-09-2012	DNR – Room 1040

Minutes of UGA Board Meetings

The minutes of monthly UGA Board meetings are now available on the UGA website. See what your elected representatives are up to! Click on <http://www.utahgeology.org/> for details.



Call for Papers

2013 Utah Geological Association Guidebook

The San Rafael Swell and Henry Mountains Basin

The Utah Geological Association (UGA) invites you to contribute a paper for its 2013 guidebook focusing on the San Rafael Swell and Henry Mountains Basin area. It has been more than 20 years since the last comprehensive geological volume has been published on this area. 2013 will be a showcase year for publication because the guidebook and annual field conference will coincide with the annual meeting of the Rocky Mountain Section of the America Association of Petroleum Geology (RMS-AAPG), September 22–25, in Salt Lake City.

Bedrock exposures in the San Rafael Swell and Henry Mountains Basin provide superb opportunities for case studies on a variety of topics. The editors are seeking quality case studies and other pertinent research that has been recently completed or will soon be completed. Suggested topics include:

CO2 Resources and Sequestration
Landforms and Landform Evolution
Geothermal Studies
Marine and Nonmarine Stratigraphy
Petroleum Geology
Quaternary Studies
Paleontology
Coal Resources

Facies Analysis and Reservoir Characterization
Geophysical Studies
Hydrogeologic Resources
Mineral and Mining Resources
Primary and Secondary Laramide Structures
Shale Gas Plays
Geologic Hazards

Interested authors need to submit a title and brief abstract or description (one paragraph is sufficient) by **April 15, 2012**. Please send the title, abstract/description, and contact information via email to editors Tom Morris or Robert Resselar (see below). Authors will receive detailed information on preparation and submission of an electronic manuscript upon acceptance of the title and abstract/description. Please contact the editors (below) with any questions.

Thank You,

Editors: Thomas H. Morris
S 375 ESC, BYU
tom_morris@byu.edu
(801) 422-3761

Robert Resselar
Utah Geological Survey
robertressetar@utah.gov
(801) 537-3314

Submittal Information (due by April 15, 2012):

Author name(s)	Email (primary)
Author affiliation(s)	Email (secondary)
Paper title	Phone (primary)
Brief abstract or description	Phone (secondary)
	Mailing address

Association of Engineering Geologists

AEG Student Night

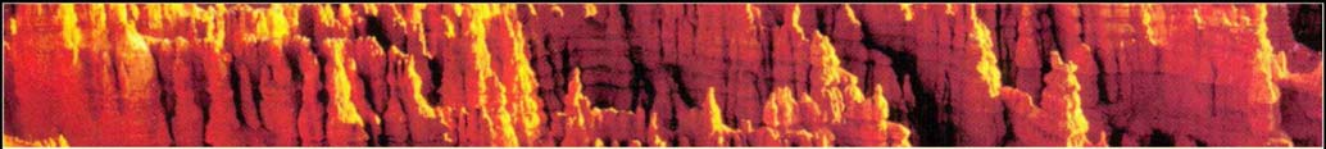
AEG monthly dinner meeting, Thursday, February 9, 2012

Gabriela Ferreira and **William Dinklage**, Utah State University, *Rhyolite volcanism in the Trans-Mexican volcanic belt with implications for groundwater flow in the village of Garanzo.*

Kevin Stuart and **Steven Emerman**, *Developing rating curves for bedrock step-pool rivers using sparse data.*

Kelly Sullivan, *The tectonic geomorphology and Quaternary geology of the Katalla River Valley, Alaska*

Dinner/Social – 5:30 to 6:30 PM; Program begins at 6:30 PM; Place – Rocky Mountain Pizza, 3977 S. Wasatch Blvd. (north of Dan's at the Olympus Hills Shopping Center), Salt Lake City, UT. Please R.S.V.P with **Joan Kester** aegintermountain@live.com by 3 PM on meeting day for reservations. Students \$6 (\$5 with RSVP or membership, \$4 with RSVP and Membership); Professionals \$17 (\$16 with RSVP or membership, \$15 with RSVP and Membership); \$5 without dinner. **For Information call: Sheila Kluck 801-671-6329.**





Just Released Revised and Expanded Third Edition

Geology of Utah's Parks and Monuments

33 chapters describing the unique geologic features of Utah's five national parks, numerous national monuments and recreation areas, the most interesting state parks and regions

Utah Geological Association Publication 28 (2010) 561 pages


Now available online from www.brycecanyon.org Price \$34.95



2011
UTAH GEOLOGICAL ASSOCIATION
PUBLICATION 40

SEVIER THRUST BELT: NORTHERN AND CENTRAL UTAH AND ADJACENT AREAS

Edited by Douglas A. Sprinkel, W. Adolph Yankee, and Thomas C. Chidsey, Jr.



UGA

JUST RELEASED!

2011 UGA GUIDEBOOK

Purchase for \$27.95 at the DNR Map Store or
Order online at www.mapstore.utah.gov

STRUCTURAL GEOLOGY

Evolution of the Wyoming Salient of the Sevier Fold-Thrust Belt, Northern Utah to Western Wyoming
Early Eastward Translation of Shortening in the Sevier Thrust Belt, Northeast Utah and Southwest Wyoming, U.S.A
Kinematic Analysis of a Fault-Related Monocline, Sevier Thrust Belt (San Pitch Mountains), Central Utah
Kinematic Analysis of Northeast-Trending Faults of the Allens Ranch 7.5' Quadrangle, Utah County, Utah
The Elko Orogeny—A Major Tectonic Event in Eastern Nevada-Western Utah

STRATIGRAPHY

Correlation and Age of the Nugget Sandstone and Glen Canyon Group, Utah
Early Results of a Study of Middle Jurassic Strata in the Sevier Fold and Thrust Belt, Utah
Integrating Facies Analysis, Nonmarine Sequence Stratigraphy, and the First Detrital Zircon (U-Pb) Ages of the Twist
Gulch Formation, Utah, U.S.A.: Constraining Paleogeography and Chronostratigraphy
Detrital Zircon U-Pb Geochronological Provenance of Lower Cretaceous Strata, Foreland Basin, Utah

PETROLEUM GEOLOGY

Petroleum Geology of Providence Oil Field, Central Utah Thrust Belt
Oil and Gas Potential of the Awapa Plateau Area, Plute, Wayne, and Garfield Counties, Utah

GEOLOGIC ROAD GUIDES

Road Log - Day 1. Road Guide to the Geologic Evolution of the Sevier Fold-Thrust Belt, Northern Utah
Road Log - Day 2. Road Guide to the Structure of the Sevier Thrust Belt in the Central Wasatch Range, Utah
Road Log - Day 3. Road Guide to the Geology of the Sanpete Valley Region, Sevier Thrust Belt, Central Utah

Lost UGA Members

The Association is looking for current email contact information on these members. If you know of a correct current email address for any of the below listed UGA members, please let the Secretary know. Thank you.

Terry Massoth, 2012 UGA Secretary

Name	Status	Year	Bad Email Addresses	Company
G.W. Anderson	Charter/Emeritus	1953	g.w@whiteoaks.msn.com	Anderson Exploration Co.
William J Barrett	Life	2002	bbarrett@billbarrettcorp.com	Bill Barrett Corp.
Paul W Burchell	Emeritus	1961	pwburchell8@msn.com	Retired - EPNG
Stephen B Church	Active	1994	schurch@sinclairoil.com	Sinclair Oil & Gas Co. Chevron Texaco Inc. (Retired)
Gary M Cupp	Charter/Life	1984	gcupp@aol.com	Utah State University
Carol M Dehler	Active	2010	carol-dehler@usu.edu	WYDOT
Denton R Dudrey	Life	1990	ddudre@missc.state.wy.us	Enron Engineering
Maurice A Gilbert	Life	1988	mgilbert@enron.com	Brigham Young University
Floyd C Moulton	Charter/Active	1975	fcmoulton@-inter.net	Quinex Energy Corp.
J. Keith Rigby	Charter/Honorary/Emeritus	1985	rigbyjkeith@qwest.net	
Carl T Shelley	Charter/Emeritus	1953	carl_shelley@msn.com	
DeForrest Smouse	Charter/Emeritus	1959	quecorp@qwest.net	

2013 AAPG-RMS Meeting to be held in Salt Lake City

The organizers of the 2013 AAPG-RMS meeting, which will be held in downtown SLC, are looking for theme and logo ideas.

The theme and logo need to be petroleum or energy-related with an emphasis on the Rockies or Utah. We plan to host an evening event at the new Natural History Museum, so a theme related to dinosaurs or something similar might work well. Or, anything that says UT, the West, and energy.

Previous AAPG-RMS themes:

2005 - Jackson, WY - Rocky Mountain Rendezvous - Rising to the Challenge (mountain theme)

2006 - Billings, MT - Undaunted Exploration of the Rockies (Lewis and Clark theme)

2007 - Snowbird, UT - Rocky Mountain Rendezvous (logo with mountains, similar to Jackson)

2008 - Denver, Co - Energy Epicenter (this is a re-occurring theme for Denver meetings)

2009 - no meeting

2010 - Durango, CO - Rocky Mountain Rendezvous (used same logo as Snowbird)

2011 - Cheyenne, WY - Energy on the Rocks (logo had a martini glass with energy scenes in the ice cubes)

2012 - Grand Junction, CO - Vintage Geology, Perfectly Aged (wine theme)

The 2003 National AAPG Meeting held in SLC had a theme of "Energy: Our Monumental Task" (with a logo showing stylized monuments from Monument Valley).

Ideas can be sent to Michael Vanden Berg (michaelvandenber@utah.gov, 801-538-5419) or Craig Morgan (craigmorgan@utah.gov, 801-537-3370).

Association of Environmental & Engineering Geologists

55th Annual Meeting

September 15-23, 2012

Salt Lake City

The Association of Environmental & Engineering Geologists will be hosting our 55th Annual Meeting in Salt Lake City, Utah September 15-23, 2012. Join us for exciting Field Trips, educational Short Courses and exceptional Technical Program. Earn PDH and CEU Credits. Visit www.aegweb.org for all of the details and to submit an abstract for the Technical Program.

Donate your air photos or imagery to the UGS!

The Utah Geological Survey (UGS) is inventorying and digitally scanning air photos as part of a larger geologic data preservation project. We are very interested in donations of air photos, airborne and satellite imagery, indexes, and old photomaps covering Utah. The UGS will add these donations to our imagery collection and database, which will ultimately help preserve and increase access to geologic data related to Utah. Donations to the UGS may be tax-deductible – consult your tax professional for details. Three air photo compilations, including indexes and scanned photos, were published last year by the UGS for areas along the Wasatch Front and in Cache Valley: http://geology.utah.gov/ghp/consultants/aerial_compilations.htm. For more information, please contact Steve Bowman at stevebowman@utah.gov or (801) 537-3304.

Association for Women Geoscientists-Salt Lake Chapter 23rd Annual Silent Auction and Wine Tasting Scholarship Benefit

Seeking auction items for the "geoscience social event of the year"

AWG is currently seeking the donation of auction items to help raise funds for the following scholarships and award:



\$2,000 Susan Ekdale Memorial Field Camp Scholarship
\$1,000 Research Scholarship
\$750 Outstanding Women Geoscience Student Award

Items pertaining to the earth sciences or the fine state of Utah generally do very well. Art, memorabilia, crafts, gift certificates, jewelry, and other types of donations are very welcome. Donations can be of any value.

Your name or company name will be readily acknowledged on the item's bid sheet and will be seen by more than 150 people attending the event. Large donations are given a special announcement during the event. This is a great way to show your generosity to the geoscience community and raise money for a worthy cause.

To make arrangements for your donations and pick up, contact Jessica Castleton at jessicacastleton@gmail.com or 801-581-3381.

We sincerely appreciate your support of our efforts to encourage the participation and enhance the professional growth of women in the geosciences.

**The auction will be held at The Founders Room, Zions Bank building
One South Main Street, Salt Lake City**

Saturday, March 31, 2012

7 to 10 pm (bidding closes at 9:30 pm)

Entrance donation \$10 (or \$5 with a bottle of wine). Students \$5. Cash or check only.

Use of the Founders Room was generously donated by the Credit Management Department, Zions Bank.



The Association for Women Geoscientists, Salt Lake Chapter
is pleased to accept applications* for the
2012 Susan Ekdale Memorial Scholarship

A single \$2000** scholarship will be awarded to a female student in the geosciences to help defray field camp expenses.

TO APPLY: e-mail *only* accepted to janaewallace@utah.gov as a .PDF or Word file

- 1) A one- to two-page (**MAXIMUM**) typed essay, double spaced, that includes
 - A description of personal and academic highlights.
 - A description of how you plan to apply your geoscience education to your future work or education.
 - A brief explanation of why you are applying for the scholarship.
 - A brief statement of what you as a woman can contribute to the geosciences.
- 2) A letter of recommendation from a professor or instructor in any field or discipline.
- 3) A letter of eligibility from your department verifying your field of study.
- 4) Address(es), phone number(s), **and e-mail** where we can reach you.

ELIGIBILITY:

- 1) Open to women attending mandatory geoscience field camp in 2012.
- 2) Applicant must be attending a Utah institution of higher learning, or be a Utah resident attending college elsewhere.
- 3) Scholarships must be applied to the cost of attending field camp, and may include equipment, tuition, books, or child care.
- 4) Applications must be received by March 12, 2012; applicants are strongly encouraged to join AWG members and guests at the annual silent auction benefit to be held on March 31, 2012 downtown Salt Lake City at the Zion's Bank Building (18th floor). The 2012 Ekdale Scholar will be announced and honored at this function. Attendance is not required for eligibility. In addition to the scholarship award, the selected candidate will also receive a one-year AWG student membership (\$20) as part of the award.

***Applications will be judged by the Ekdale Scholarship Committee based upon merit and need.
Academic performance will be considered to a lesser degree.**

****The scholarship committee reserves the right to split the award between two recipients.**



Guidelines for the Research Scholarship Offered by the Salt Lake Chapter of the Association for Women Geoscientists

PURPOSE: This annual scholarship will help defray the costs of presenting research results at national or regional science conventions and meetings.

ELIGIBILITY: Any undergraduate or graduate woman who is (1) attending a Utah college or university, (2) engaged in geoscience research, and (3) will be presenting the results of her research at a national or regional science convention or meeting within 16 months of being awarded this scholarship.

CRITERIA FOR SCHOLARSHIP AWARD: This scholarship will be awarded based upon the quality and importance of the research being conducted and reported.

AWARD DESCRIPTION: Expenses associated with attendance at the meeting will be reimbursed for a total of \$1000. The selected candidate will also receive a one-year AWG student membership (\$20) as part of the award.

COVERED EXPENSES: Registration. Travel to and from the meeting. Hotel and meals associated with the meeting. Awardee will be expected to save all receipts to submit for reimbursement. Members of the Research Scholarship Committee will work closely with the awardee on documenting allowable expenses for reimbursement. Expenses associated with the attendance of the applicant's research advisor or the attendance of other students will not be covered by this scholarship.

APPLICATION PROCEDURE AND MATERIALS TO BE SUBMITTED:

- Letter from applicant **summarizing** research, purpose of research, and importance of research (please **KEEP THIS BRIEF**, 10 pages is **too long**, less than 4 is preferred);
- Identification of the convention or meeting that research results are to be presented;
- A copy of the abstract submitted, or to be submitted, to the convention or meeting at which the research results will be presented;
- A listing of courses taken during the term the application is submitted; and
- A letter of recommendation from applicant's research advisor.

If the abstract submitted with the application is not the final abstract accepted for the meeting, the awardee will provide the Scholarship Committee with a copy of the final, accepted abstract when it is available.

ASSOCIATION FOR WOMEN GEOSCIENTISTS



**Guidelines for the
Research Scholarship
Offered by the Salt Lake Chapter of the
Association for Women Geoscientists**

PLEASE NOTE: If an abstract is not accepted by and presented at any acceptable convention or meeting within 16 months of the awarding of this scholarship, the Salt Lake Chapter of the Association for Women Geoscientists may revoke the scholarship without any obligation, monetary or otherwise, to the awardee.

DATE APPLICATION DUE: 12 March 2012

DATE OF NOTIFICATION OF AWARD: March 2012

QUESTIONS? Janae Wallace (janaewallace@utah.gov; 801-537-3387)

COMPLETED APPLICATIONS: E-mail to Janaewallace@utah.gov

POTENTIAL MEETINGS FOR SCHOLARSHIP:

Geological Society of America regional and national meetings: see the Web site at www.geosociety.org for dates and locations.

American Association of Petroleum Geologists regional and national meetings: see the Web site at www.aapg.org for dates and locations.

For a listing of more specialized meetings go to www.agiweb.org/members/index.html.


All talks are at 4:00pm
unless otherwise indicated

Distinguished Lecture Series Spring 2012 Speakers List

Day	Date	Speaker	Title and Affiliation
Th.	1/12	Burns, Scott	"Cataclysms on the Columbia, the Great Missoula Floods" (Richard Jahns Lectures sponsored by AEG)
Th.	1/19	Keller, Arturo	"Environmental Applications and Implications of Nanotechnology" (UC Santa Barbara & UC CEIN)
Th.	1/26	Geoslam I	Presentations given by our new graduate students on their research.
Th.	2/2	Geoslam II	Presentations given by our new graduate students on their research.
Th.	2/9	Jean Cline	"Carlin-type Gold Deposits in Nevada: Unique Hydrothermal" (University of Nevada Las Vegas)
Th.	2/16	Peter Rose	"Tracing Fluids in Geologic Formations" (from Energy & Geoscience Institute at the University of Utah)
Th.	2/23	Tom Morris	"The Many Faces of Utah's Entrada Sandstone" (Brigham Young University)
Th.	3/1	Jim Hollis	(NEOS)
Th.	3/8	Pete Reiners	"New Innovations in Geochronology" (University of Arizona)
Th.	3/15	NO LECTURE	SPRING BREAK
Th.	3/22	Rich Levielle	"Why on Earth Would Anyone Want to be an Minerals Exploration Geologist?"
Th.	3/29	Avner Vengosh	"Possible Environmental Effects of Shale Gas Drilling and Hydraulic Fracturing in the United States" (Duke University)
Th.	4/5	Jerry Schuster	"Fault Scarp Detection by a Seismic Scanning Tunneling Microscope" (Kaust University)
Th.	4/12	Matt Mikulich	"Global Oil Reserves and Hubbard's Peak" (retired Chevron Corp.)
Th.	4/19	Vic Baker	"Mega Floods on Earth and Mars" (University of Arizona)

Last Revised: 1/24/12

18th ANNUAL



3-D Seismic Symposium

Friday, March 2, 2012

DOWNTOWN MARRIOTT
CITY CENTER HOTEL
DENVER, COLORADO


REGISTRATION IS OPEN AT: www.3dseismicsymposium.com

Reflecting on Resources

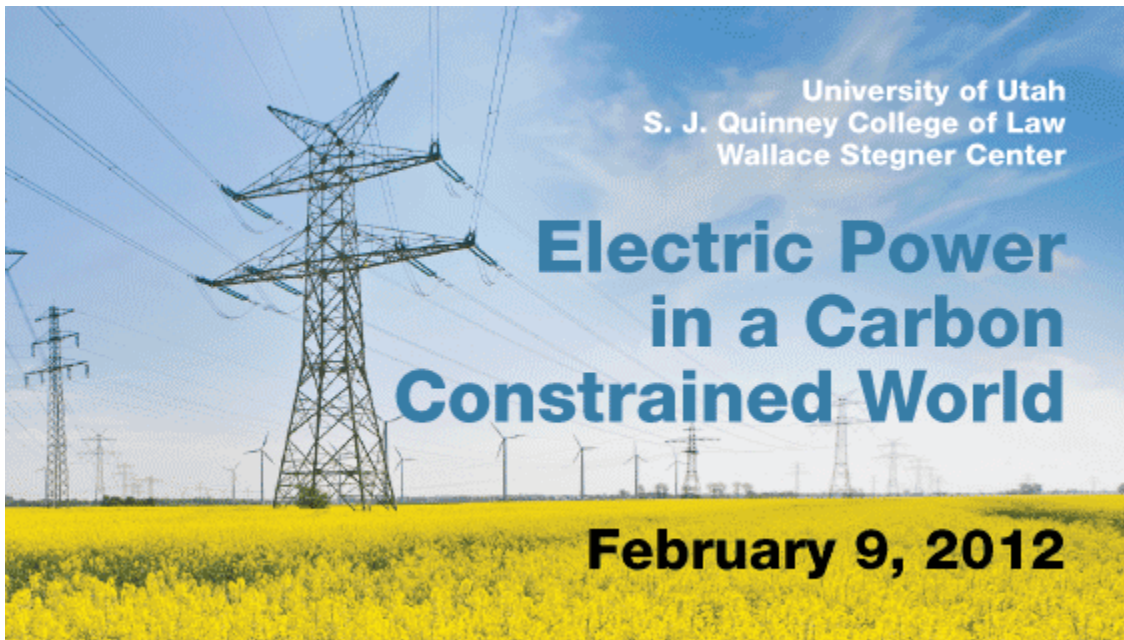
Key Note Speaker
Steve Natali, WPX Energy
A Multi-TCF Gas Discovery, Mancos Shale Formation, San Juan Basin, New Mexico

Also Highlighting

- **Bakken:** Structural Influence and Well-Seismic Integration
- **Niobrara:** Wattenberg, Silo, and more
- **Woodford:** Use of Curvature to Highlight Subtle Fault Blocks
 - **Fayetteville:** Seismic Reservoir Characterization
 - **Haynesville:** Sweet Spot Discrimination
 - **Eagle Ford:** Statistics to Predict Production
 - **Marcellus:** Geomechanics and Microseismic



Sponsored by Rocky Mountain Association of Geologists & Denver Geophysical Society



University of Utah
S. J. Quinney College of Law
Wallace Stegner Center

Electric Power in a Carbon Constrained World

February 9, 2012

Registration required. [Click here to register.](#)

This conference will address four aspects of electric power generation related to government efforts to reduce carbon emissions from this industry. The first panel will discuss the role of coal-fired electric power generation; the second panel will deal with the rapidly growing natural gas industry and the role of natural gas for generating electricity; the third panel will focus on the use of alternative energy to produce electricity; and the fourth panel will address the role of nuclear electric power. The speakers will focus their remarks primarily on electric power generation in the Western United States.

Digital Location Referencing, Computer Maps, and Geographic Information for Geologists

by Bruce Vandre

Dixie State College, St. George, Utah Community Education Call #: 25586

Date: Feb 25, 2012, 9:30am-4:30pm; Place: DSC, Smith Computer Center, Rm 118

Call (435) 652-7675 for information and registration

Class Fee: \$38 per person

Lab Fee: \$10 payable to Community Education

Digital map and location referencing technology is rapidly changing. This class will survey available resources and demonstrate select tools. References will include Internet sites and tutorials. The class will be held in a computer laboratory enabling software use and experimentation. The Utah Department of Professional Licensing is providing a grant for the continuing education of Professional Geologists that has reduced the registration fee. Class attendance is limited to the number of computers available, 25.

The class content will include:

- Coordinate Location Referencing Systems: Geographic, UTM, and State Plane
- Internet Information Resources: geology, topographic, and geographic
- Introduction to map/location computer data formats
- Using Google Earth for viewing maps, presenting data, and making measurements.
- Using laptop, hiking, and Ipad GPSs for 5 to 15 meter location referencing
- Transferring location information back and forth from GPS, Computer Maps, and Google Earth
- Georeferencing Maps, Making Measurements, and Transforming Coordinates/File Formats Using Global Mapper
- Creating Internet Maps
- Georeferencing Photos

Bruce Vandre has worked in civil engineering for over 40 years. He has been employed by Geotechnical Engineering Consultants in San Francisco, Portland, and Salt Lake City, the USDA Forest Service, and Utah Department of Transportation. He has had a professional geology license in Oregon and engineering licenses in Oregon, Washington, Idaho, Wyoming, Utah, and Colorado. During retirement he has updated his GPS and GIS skills for personal research projects. His web site is Vanmontage.org. and email address for this class is education@vanmontage.org.

UGA VOLUNTEERS

UGA Board

(unless otherwise indicated, area code is 801)

2012 President	Kimm Harty, kimmharty@utah.gov	537-3313
2012 President-Elect	Craig Morgan, craigmorgan@utah.gov	537-3370
2012 Program Chair	Leslie Heppler, lheppler@utah.gov	538-5257
2012 Treasurer	Helen Sadik-Macdonald, hmacdonald@utah.gov	538-5357
2012 Secretary	Terry Massoth, twmassoth@hotmail.com	541-6258
2011 Past-President	Steve Schamel, geox-slc@comcast.net	583-1146

UGA Committees

Education/Scholarship	Loren Morton, lmorton@utah.gov	536-4262
Environmental Affairs	Craig Eaton, eaton@ihi-env.com	633-9396
Geologic Road Sign	Sandy Eldredge, sandyeldredge@utah.gov	537-3325
Historian	Paul Anderson, paul@pbageo.com	364-6613
Membership		
Public Education	Paul Jewell paul.jewell@utah.edu	581-6636
	Sandy Eldredge, sandyeldredge@utah.gov	537-3325
Publications	Roger Bon, rogerbon@xmission.com	942-0533
Publicity	Paul Inkenbrandt, paulinkenbrandt@utah.gov	537-3361
Social/Recreation	Roger Bon, rogerbon@xmission.com	942-0533

AAPG House of Delegates

Carl Kendell carl.kendell@flyingj.com	296-7721
Brad Hill bradhill@utah.gov	538-5315

UGA Web Site

<http://www.utahgeology.org>

Webmasters	Lance Weaver lanceweaver@utah.gov	537-3346
	Paul Inkenbrandt paulinkenbrandt@utah.gov	537-3361

UGA Newsletter

Newsletter Editor	Bob Biek bobbiek@utah.gov	537-3356
-------------------	---	----------

2012 UGA Guidebook Editors

Mike Hylland mikehylland@utah.gov	537-3382
Kimm Harty kimmharty@utah.gov	537-3313

2013 UGA Guidebook Editors

Robert Ressetar robertressetar@utah.gov	537-3314
Tom Morris tom.morris@byu.edu	422-3761